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**PATENT**

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**UNITED STATES PROVISIONAL PATENT APPLICATION**

**CHAIR ASSEMBLY**

**BACKGROUND**

Cross reference to related applications

**[0001]** This application claims the benefit under 35 U.S.C. 119(e) of US Provisional Application No. 60/441,611, filed January 17, 2003.

Field of the Invention

**[0002]** The present invention relates generally to shade devices and more particularly, but not by way of limitation, to a chair assembly.

Description of the Related Art

**[0003]** People have long used collapsible, portable chairs (hereinafter referred to as collapsible chairs) to provide temporary seating at beaches, parks and sporting events. Typically, collapsible chairs have been made from a metal, wood or plastic frame with a flexible back and seat. In an expanded position, the collapsible chairs provide a chair seat to support a user's posterior and a chair back provides a supporting surface to support the user's back. In a collapsed position, the collapsible chairs are easier for the user to carry.

Because collapsible chairs are typically used in an outdoor environment, the collapsible chairs may be provided with an umbrella or other shading device.

**[0004]** Although the umbrellas and collapsible chairs of the existing art are operable, further improvements are desirable to enhance the portability and ease of use of chair assemblies having frames in combination with umbrellas wherein the position of the umbrellas relative to the frame of the chair assemblies can easily be modified. It is to such improvements that the present invention is directed.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0005]** FIG. 1 is a perspective view of a chair assembly constructed in accordance with the present invention.

**[0006]** FIG. 2 is a fragmental, perspective view of a pivot assembly for connecting an umbrella to a frame of the chair assembly shown in FIG. 1.

**[0007]** FIG. 3 is a perspective view of the bag for containing and storing the frame and umbrella shown in FIG. 1 when same are in a collapsed condition.

**[0008]** FIG. 4 is a perspective view of another embodiment of a chair assembly constructed in accordance with the present invention.

**[0009]** FIG. 5 is a perspective view of the chair assembly of FIG. 1 wherein a lamp is connected to a shaft of the umbrella and the chair assembly is

enclosed in a mosquito netting.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

**[0010]** Referring now to the drawings, and more particularly to FIG. 1, shown therein is a chair assembly 100 which includes a frame 102 and a support member 104. The frame 102 provides a structure by which a user may sit on at least a portion of the support member 104 such that the user is supported a distance above the ground or other supporting surface 106. The support member 104 includes a seat portion 108, a transition portion 110, and a back portion 112. The seat portion 108 is adapted to support a posterior of the user, the back portion 112 supports a back of the user and the transition portion 110 is that portion of the support member 104 extending between the seat portion 108 and the back portion 112.

**[0011]** The frame 102 of the chair assembly 100 may be fabricated of tubular or solid structural members. However, it is often desirable that the frame 102 be fabricated of tubular structural members because such members generally have an improved strength to weight ratio than do solid structural members. In certain instances, certain components of the frame 102 may be fabricated of tubular materials while other components are fabricated of solid materials.

**[0012]** The frame 102 is desirably made of light-weight materials to

enhance portability. Suitable light-weight materials which may be used in the construction of the frame 102 include aluminum, steel, titanium, magnesium or alloys thereof. Other suitable materials which may be used in the construction of the frame 102 include plastics, wood, composite materials and laminated materials.

**[0013]** The support member 104 is made of a flexible material which is capable of providing a compliant support for the user and which is capable of being folded to enhance portability. Suitable flexible materials which may be used in the fabrication of the support member 104 include cloth, canvas, nylon, polyester, inter-woven strips or straps of such materials, as well as other pliant materials. The flexible material may be doubled over and stitched to form passages through which individual portions of the frame 102 are inserted during initially assembly thereof.

**[0014]** The frame 102 also includes left and right arm support members 114 and 116 which are connected to and support left and right armrests 118 and 120, respectively. The left and right armrests 118 and 120 provide a surface on which the user can rest the user's arms while seated on the seat portion 108 of the support member 104.

**[0015]** The frame 102 also has a plurality of legs 122 that support the seat portion 108 of the collapsible support member 104 a distance above the ground of other supporting surface 106. The cross-sectional area of each leg 122 may

be larger or smaller as required by the weight of the user and the material selected for fabrication of the support member 104.

**[0016]** The frame 102 further includes four shoes 124a - 124d, one of which is attached to a lower end of each of the legs 122 of the frame 102 substantially as shown. Each of the shoes 124a - 124d is provided with a lower surface 126a - 126d that generally conforms to the ground or supporting surface 106. Thus, the shoes 124a - 124d cooperate to substantially define a planar surface so that the frame 102 will not rock when the frame 102 is in an expanded operative position and the user shifts positions on the support member 104 of the chair assembly 100. In order to further enhance the stability of the frame 102, the shoes 124a - 124d may be weighted.

**[0017]** For the particular frame 102 shown in FIG. 1, the legs 122 of the frame 102 are formed of a plurality of angularly disposed members, two of which are connected to each of the shoes 124a - 124d. Thus, one of the legs 122 of the frame 102 extends from the right forward shoe 124c at an angle such that an upper portion of such leg 122 defines the left arm support 114 for the left armrest 118. Similarly, another of the legs 122 of the frame 102 extends from the left forward shoe 124a at an angle such that an upper portion of such leg 122 defines the right arm support 116 for the right armrest 120.

**[0018]** The frame 102 further includes a back support frame 128 which is connected to the rearward two shoes 124b and 124d of the frame 102 such

that the back support frame 128 extends upwardly therefrom. The back support frame 128, which provides a support for the back portion 112 of the support member 104, includes a left upright member 130 and right upright member 132. Thus, the left and right armrests 118 and 120 extend between the left and right upright members 130 and 132 of the back support frame 128 and the portion of the legs 122 defining the left and right arm supports 114 and 116, respectively. If desired, the left and right armrests 118 and 120 may be fabricated of a flexible material. In such instance, the left and right armrests 118 and 120 may be provided with a semi-rigid stiffener disposed in the collapsible material near the left and right arm supports 114 and 116.

**[0019]** It should be noted that while a specific embodiment of the frame 102 and support member 104 has been described herein, any collapsible frame well known in the art can be employed in the practice of the present invention as long as the frame is capable of supporting an umbrella in a desired portion relative to the frame when the frame is in an expanded operative position.

**[0020]** Referring now to FIGS. 1 and 2, the frame 102 of the chair assembly 100 is provided with an elongated member or pole 134 which is detachably connected to the right upright member 132 of the back support frame 128. The pole 134 supports an umbrella 136 in a position above the frame 102 to provide shade for the user of the chair assembly 100. The pole 134 is detachably connected to the right upright member 132 of the back

support frame 128 via a pair of support clamps 138. While the support clamps 138 have been shown as being spring-type biased clamps supported by the pole 134 so as to positionable about the right upright member 132 of the back support frame 128, it should be understood that any suitable clamp or connecting member can be used as the support clamps 138 such as strips of velcro®, wire, plastic strips and the like. The only requirement for the support clamps 138 is that the support clamps 138 be capable of supporting the pole 134 in a substantially stable upright position relative to the right upright member 132 of the back support frame 128.

**[0021]** The pole 134 is provided with an upper member 139a and a lower member 139b. The upper member 139a is detachable from the lower member 139b when the pole 134 is disassembled for storage. That is, the upper member 139a is connectable to the lower member 139b when the pole 134 is assembled for supporting the umbrella 136, but the upper member 139a can be disconnected from the lower member 139b when the pole 134 is disconnected from the right upright member 132 of the frame 102. While the pole 134 has been shown as having the upper member 139a connectable to a lower member 139b, it is to be understood that the pole 134 may be constructed so the upper member 139a can be telescopically retracted into the lower member 139b.

**[0022]** The umbrella 136 is provided with a shaft 140; and the shaft 140

is pivotally connected to the upper member 139a of the pole 134 via a pivot assembly 142 so that the position of the umbrella 136 may be adjusted relative to the frame 102 in accordance with the direction of the sun or the user's desires. Thus, the umbrella 136 functions in a conventional manner and provides shade for the user of the chair assembly 100 when the shaft 140 of the umbrella 136 is connected to the frame 102 and the umbrella 136 is disposed in an extended or operative position.

**[0023]** The shaft 140 of the umbrella 136 is shown as being of telescoping construction for ease of storage and transportation of the umbrella 136. While the shaft 140 of the umbrella 136 is illustrated as having 3 telescoping sections 144a, 144b and 144c, it should be understood that the shaft 140 could be provided with 2 sections or 4 sections or any number of sections depending upon the desired length of the shaft 140 when in the retracted position. In addition, the shaft 140 may be provided with a plurality of retractable buttons, set screws or other devices for stabilizing the shaft 140 of the umbrella 136 in the extended position.

**[0024]** Referring now to FIG. 2 the pivot assembly 142 for pivotally connecting the shaft 140 of the umbrella 136 to the pole 134 so that the position of the umbrella 136 can be varied relative to the frame 102 will now be described in more detail. The pivot assembly 142 includes a first locking member 146, a second locking member 148 and a knob 150 having a threaded



shaft 152 for connecting and securing the first locking member 146 in a desired position relative to the second locking member 148 and the pole 134. The knob 150 may be knurled for easier manipulation by the user.

**[0025]** The first locking member 146 of the pivot assembly 142 is connected to an upwardly extending end 154 of the upper member 139a of the pole 134; and a tubular extension member 156 is connected to second locking member 148. The tubular extension member 156 is adapted to receive a distal end portion 158 of the section 144a of the shaft 140 of the umbrella 136 such that, in a connected position of the first and second locking member 146 and 148, the pole 134, and thus the umbrella 136, are secured and disposed in desired position relative to the frame 102. That is, each of the first and second locking member 146 and 148 are provided with ratchet-like teeth 160 and 162, respectively, which are meshed when the threaded shaft 152 of the knob 150 is threadably disposed in the threaded bores of the first and second locking members 146 and 148. Thus, upon positioning the second locking member 148 in a desired position relative to the first locking member 146, and thereafter turning the knob 150 in a clockwise direction, the first and second locking members 146 and 148 are secured in a stable position and the angular disposition of the umbrella 136 is achieved when the distal end portion 158 of section 144a of the shaft 140 of the umbrella 136 is disposed within the tubular extension member 156.

**[0026]** Upon turning the knob 150 in a counterclockwise direction, the threaded shaft 152 is loosened whereby the first and second locking members 146 and 148 disengage one another so that the user can change the angular disposition of the umbrella 136. Thereafter, the knob is again turned in a clockwise direction to secure the second locking member 148 to the first locking member 146.

**[0027]** While the pivot assembly 142 has been described herein with reference to FIG.2, it should be understood the any type of pivot assembly can be employed in the practice of the present invention as long as the pivot assembly allows attachment of the distal end portion 158 of section 144a of the shaft 140 to the upper member 139a of the pole 134 such that the angular disposition of the umbrella 136 can be manipulated relative to the position of the frame 102. If desired, the tubular extension member 156 may be provided with a threaded bore extending through a portion of the sidewall and a set screw may be threadably disposed in the threaded bore.

**[0028]** The unique construction of the chair assembly 100, including the frame 102, the umbrella 136 and the shaft 140 of the umbrella 136, as well as the sectional or telescope-like construction of the pole 134 and it's connection to the frame 102 and the shaft 140 of the umbrella 136, permits the user to disassemble and/or retract such components for compact storage and transporting of the frame 102, the umbrella 136 and the shaft 140.

**[0029]** Shown in FIG. 3 is a bag 164 for storing and transporting the frame 102, as well as the umbrella 136, the shaft 140 of the umbrella 136 and the pole 134 employed to connect the shaft 140 of the umbrella 136 to the frame 102 when such components are in a collapsed or disassemble condition. The bag 164 is provided with an exterior sleeve 166 and a handle or shoulder strap 168. The exterior sleeve 164 has an open end 167 and the exterior sleeve 166 is dimensioned to receive and store the umbrella 136 and the shaft 140 of the umbrella 136 when the shaft 140 is in the retracted position. If desired, a closure flap (not shown) can be provided to close off the open end 167 the exterior sleeve 166.

**[0030]** The bag 164 is also provided with an opening for permitting access to an interior storage area of the bag 164, the opening being of sufficient size to permit the frame 102 to be inserted therethrough and into the interior storage area of the bag 164 when the frame 102 is in a collapsed, folded position; or to permit other auxiliary items which may be connected to the shaft 140 of the umbrella 136 or frame 102 to be disposed within the bag 164.

**[0031]** The bag 164 is further provided with a zipper 170 for closing the opening in the bag 164. It should be understood that while the bag 164 has been shown as having the zipper 170 for closing the opening therein, any suitable mechanism can be employed to close off the opening in the bag 164, such as a flap with buckles, a flap and a plurality of straps, velcro® connectors

and the like.

**[0032]** The bag 164 can be made of a suitable material such as cloth, canvas, nylon, polyester and the like. Desirably, the bag 164 as well as the exterior sleeve 166 are fabricated of a collapsible water-resistant material. However, it should be understood that the bag 164 and exterior sleeve 166 are not to be limited to collapsible, water-resistant materials. Therefore shape-sustaining materials can be employed in the fabrication of the bag 164 and the exterior sleeve 166, the only requirement being that the bag 164 and the exterior sleeve 166 be fabricated of a material which permits the frame 102 and the umbrella 136 to be stored in the bag 164 and in the exterior sleeve 166, respectively.

**[0033]** Referring now to FIG. 4, shown therein is a chair assembly 200 which includes a frame 202 and a support member 204. The frame 202 provides a structure by which a user may sit on at least a portion of the support member 204 such that the user is supported a distance above the ground or other supporting surface 206. The support member 204 includes a seat portion 208, a transition portion 210, and a back portion 212. The seat portion 208 is adapted to support a posterior of the user, the back portion 212 supports a back of the user and the transition portion 210 is that portion of the support member 204 extending between the seat portion 208 and the back portion 212.

**[0034]** The frame 202 of the chair assembly 200 is similar to the frame 102

of the chair assembly 100 herein before described. Thus, the frame 202 may be fabricated of tubular or solid structural members. However, it is often desirable that the frame 202 be fabricated of tubular structural members because such members generally have an improved strength to weight ratio than do solid structural members. In certain instances, certain components of the frame 202 may be fabricated of tubular materials while other components are fabricated of solid materials.

**[0035]** The frame 202 is desirably made of light-weight materials to enhance portability. Suitable light-weight materials which may be used in the construction of the frame 202 include aluminum, steel, titanium, magnesium or alloys thereof. Other suitable materials which may be used in the construction of the frame 202 include plastics, wood, composite materials and laminated materials.

**[0036]** The support member 204 is made of a flexible material which is capable of providing a compliant support for the user and which is capable of being folded to enhance portability. Suitable flexible materials which may be used in the fabrication of the support member 204 include cloth, canvas, nylon, polyester, inter-woven strips or leaves of such materials, as well as other pliant materials. The flexible material may be doubled over and stitched to form passages through which individual portions of the frame 202 are inserted during initial assembly, thereof.

**[0037]** The frame 202 also includes left and right arm support members 214 and 216 which are connected to and support left and right armrests 218 and 220, respectively. The left and right armrests 218 and 220 provide a surface on which the user can rest the user's arms while seated on the seat portion 208 of the support member 204. In addition, and as will be described in more detail hereinafter, the right armrest 220 is provided with a plurality of holes 222 extending substantially along the length thereof, each of the hole 222 being sized to receive a portion of a shaft 224 of an umbrella 226 whereby the right armrest 220 assists in connecting the shaft 224 of the umbrella 226 to the frame 202 of the chair assembly 200.

**[0038]** The frame 202 also has a plurality of legs 228 that support the seat portion 208 of the collapsible support member 204 a distance above the ground of other supporting surface 206. The cross-sectional area of each leg 228 may be larger or smaller as required by the weight of the user and the material selected for fabrication of the support member 204.

**[0039]** The frame 202 further includes four shoes 230a - 230d, one of which is attached to a lower end of each of the legs 228 of the frame 202 substantially as shown. Each of the shoes 230a - 230d is provided with a lower surface 232a - 232d that generally conforms to the ground or supporting surface 206. Thus, the shoes 230a - 230d cooperate to substantially define a planar surface so that the frame 202 will not rock when the user is shifting

positions on the support member 204 of the collapsible chair 200. In order to further enhance the stability of the frame 202, the shoes 230a - 230d may be weighted.

**[0040]** For the particular chair assembly 200 shown in FIG. 4, the legs 228 of the frame 202 are formed of a plurality of angularly disposed members, two of which are connected to each of the shoes 230a - 230d. Thus, one of the legs 228 of the frame 202 extends from the right forward shoe 230c at an angle such that an upper portion of such leg 228 defines the left arm support 214 for the left armrest 218. Similarly, another of the legs 228 of the frame 202 extends from the left forward shoe 230a at an angle such that an upper portion of such leg 228 defines the right arm support 216 for the right armrest 220.

**[0041]** The frame 202 further includes a back support frame 233 which is connected to the rearward two shoes 230a and 230d of the frame 202 such that the back support frame 232 extends upwardly therefrom. The back support frame 232, which provides a support for the back portion 212 of the support member 204, includes a left upright member 234 and right upright member 236. Thus, the left and right armrests 218 and 220 extend between the left and right upright members 234 and 236 of the back support frame 232 and the portion of the legs 228 defining the left and right arm supports 214 and 216, respectively. If desired, the left and right armrests 218 and 220 may be fabricated of a flexible material. In such instance, the left and right armrests

218 and 220 may be provided with a semi-rigid stiffener disposed in the collapsible material near the left and right arm supports 214 and 216.

**[0042]** An umbrella support member 238 is connected to a portion of the frame 202 such that the umbrella support member 238 extends between the rearward right shoe 230d and the forward right shoe 230c substantially as shown. The umbrella support member 228 is provided with plurality of holes 240 extending substantially along the length thereof, each of holes 240 adapted to receive a lower end portion of the shaft 224 of the umbrella 226 when the shaft 224 of the umbrella 226 is disposed through one of the holes 222 in the right armrest 220 whereby the right armrest 220 and the umbrella support member 238 cooperate to connect the shaft 224 of the umbrella 226 to the collapsible chair 100 by positioning the shaft 224 of the umbrella 226 in a selected hole 222 in the right armrest 220 and a selected hole 240 in the umbrella support member 228. Thus, the disposition of the umbrella 226 relative to the frame 202 can readily be varied. In addition, and especially if the frame 202 is supported on a particulate surface, such as sand, a distal end of the shaft 224 of the umbrella 226 can be embedded a distance into the particulate matter for assisting in stabilizing the umbrella 226 relative to the frame 202.

**[0043]** The umbrella support member 238 can be fabricated of any suitable material, provided that it permits the frame 202 to be selectively moved to the



collapsed position for storage and transportation. Thus, it is desirable that the umbrella support member 238 be fabricated of a flexible material so as to permit same to be collapsed when the frame 202 is move to the folded position.

**[0044]** The shaft 224 of the umbrella 236 is shown as being constructed of three sections 242a, 242b and 242c which are threadably connected when the shaft 224 is in the extended erected condition shown in FIG. 4. While the shaft 224 of the umbrella 236 has been illustrated as having the three sections, 242a, 242b and 242c, it should be understood that the shaft 224 could be provided with 2 sections or 4 sections or any number of sections depending upon the length of the sections when the shaft 224 is in the disassembled position. In addition, while the shaft 224 has been shown as having the three sections 242a, 242b and 242c which are threadably connected when the shaft 224 is in the extended position, it should be that the shaft 224 could be provided with a telescoping construction wherein the various sections of the shaft 224 can be telescopically disposed in an adjacently disposed section.

**[0045]** When the umbrella 236 is in the collapsed position and the shaft 224 is disassembled, the umbrella 236 and the sections 242a, 242b and 242c of the shaft 224, can be conveniently stored in a bag, such as the bag 164 herein before described with reference to the frame 102 and the umbrella 136.

**[0046]** Referring now FIG. 5, the chair assembly 100 herein before described with reference to FIG. 1 is shown having a net 250 encompassing the

umbrella 136 and the frame 102. The net 250 can be merely draped over the umbrella 136 and thereby encompass the chair assembly 100 or the net 250 can be connected to the outer surface of the umbrella 136, either permanently or temporarily. The net 250 keeps mosquitoes and other insects away from the user of the chair assembly 100. In addition, a detachable, battery-operated light 252 can be attached to a portion of the shaft 140 of the umbrella 136 for providing a light source for one using the chair assembly 100 when reading and the like in a shaded area.

**[0047]** From the above description, it is clear that the present invention is well adapted to carry out the objects and to attain the advantages mentioned herein as well as those inherent in the invention. While presently preferred embodiments of the invention have been described for purposes of this disclosure, it will be understood that numerous changes may be made which will readily suggest themselves to those skilled in the art and which are accomplished within the spirit of the invention disclosed.